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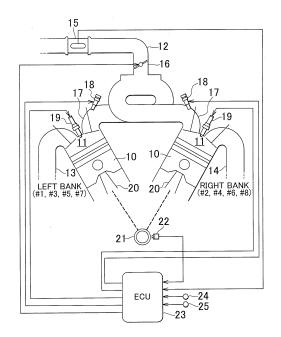
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- (54) Multiple cylinder internal combustion engine misfiring cylinder identifying apparatus and misfiring cylinder identifying method
- (57) An electronic control unit (23) determines whether a plurality of cylinders is misfiring based on a revolution speed fluctuation pattern of all of the cylinders. When it is detected that a plurality of cylinders (#1 to #8) is misfiring, the electronic control unit (23) obtains an integrated value of a revolution speed fluctuation amount in a specified number of cycles for each cylinder, and identifies two cylinders among the plurality of cylinders (#1 to #8) in the order of the integrated values from largest as the misfiring cylinders (#1 to #8).

FIG. 1



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## **EUROPEAN SEARCH REPORT**

Application Number EP 08 16 7431

Category	Citation of document with indication of relevant passages	on, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)		
x	US 2007/157713 A1 (TSUM [JP] ET AL) 12 July 200 * abstract; figures 2a,	(AMOTO TOSHINORI )7 (2007-07-12) 2b * 	1-12	INV. G01M15/11		
				TECHNICAL FIELDS SEARCHED (IPC)		
	The present search report has been d	rawn up for all claims  Date of completion of the search		Examiner		
The Hague		15 July 2014	Vvt	Vytlacilová, Lenka		
CATEGORY OF CITED DOCUMENTS  X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure		T : theory or principle E : earlier patent doc after the filing dat D : document cited in L : document cited fo	T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filling date D: document cited in the application L: document cited for other reasons  &: member of the same patent family, corresponding			

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 08 16 7431

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2007157713	A1	12-07-2007	EP JP JP US	1804044 4509986 2007198368 2007157713	B2 A	04-07-2007 21-07-2010 09-08-2007 12-07-2007

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